PRODUCT SPECIFICATION

Lithium/Manganese Dioxide

CR123A SIZE BATTERY

Type Designation：	CR123A
Prepared by：	
Checked by：	
Approved by：	
Issued Date：	2026-05-07

1. Scope:

This specification is applicable to Voniko Manganese Dioxide Lithium battery, CR123A.

2. Law & Regulation Compliances:

GB Standard	IEC Standard	EU Standard
GB/T 8897.1 GB/T 8897.2 GB 8897.4	IEC 60086-1 IEC 60086-2 IEC 60086-4	（EU）2023/1542 （EU）2025/40

3. General:

3.1 Type designation

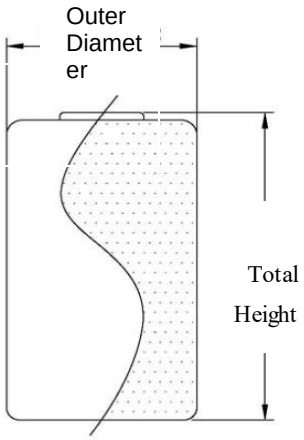
IEC/GB	ANSI	Common
CR17345	5018LC	CR123A,123

3.2 Chemical system: Lithium/Manganese Dioxide (Li/MnO_2)

3.3 Nominal voltage: 3.0 V

3.4 Weight: approximate15.1g

3.5 Dimension (mm)



/	min	max
Outer Diameter	16.0	17.0
Total Height	33.5	34.5

3.6 Capacity: Approximate1600mAh (10mA,24h/d,20±2°C, 55+20/-40%RH, e.v.=2.0V）

3.7 Heavy Metal Contents: Hg ≤5 ppm, Cd≤20ppm, Pb≤40ppm

3.8 Operation temperature : -40℃~ +60℃
Recommend temperature : +10°C ~ +35°C

4. Appearance:

The battery visually inspected by unaided eye 30cm away from battery. The battery shall be free from dents, scratch, rust and extruded internal compounds, such as sealing compounds and etc, and serious displacement of artwork. Appearance defects shall not be observed that may adversely affect actual use or performance of batteries.

5. Electrical Characteristics

Unless otherwise stated, all measurements are to be performed at a Standard Environment of
20°C±2 °C
55 + 20 / -40% RH

All samples are normalized for 8 hours at least at the above environment prior to measurement.
The measurement accuracy for DCV shall be ±0.1% or better.
The load resistance of the total circuit is accurate within ±0.5% of the specified value.

5.1 Open circuit voltage and closed circuit voltage (Load resistance50Ω, 0.3S)

/		OCV(V)	CCV(V)
Initial	Min	3.1	2.9
Stored 1year	Min	3.1	2.9

5.2 Service Output

Load		900mA	100Ω	750mA
Test mode		3s/30s,24h/d	24h/d	4m/15m,1h/4h
End voltage		1.55V	2.0V	1.8V
Applications		Photo	Service output test	High intensity lighting
Unit		pulse	h	min
Initial	MAD	1800	53.0	102
Stored 1year	MAD	1780	52.5	100

h: hour d: day

*The initial discharge test shall commence within 30 days of manufacture. During stored period, the cells shall be stored under 20±2℃,RH55±20%conditions.

6. Expiry Period:

10 years at 20℃±2℃

7. Expiry Date Marking:

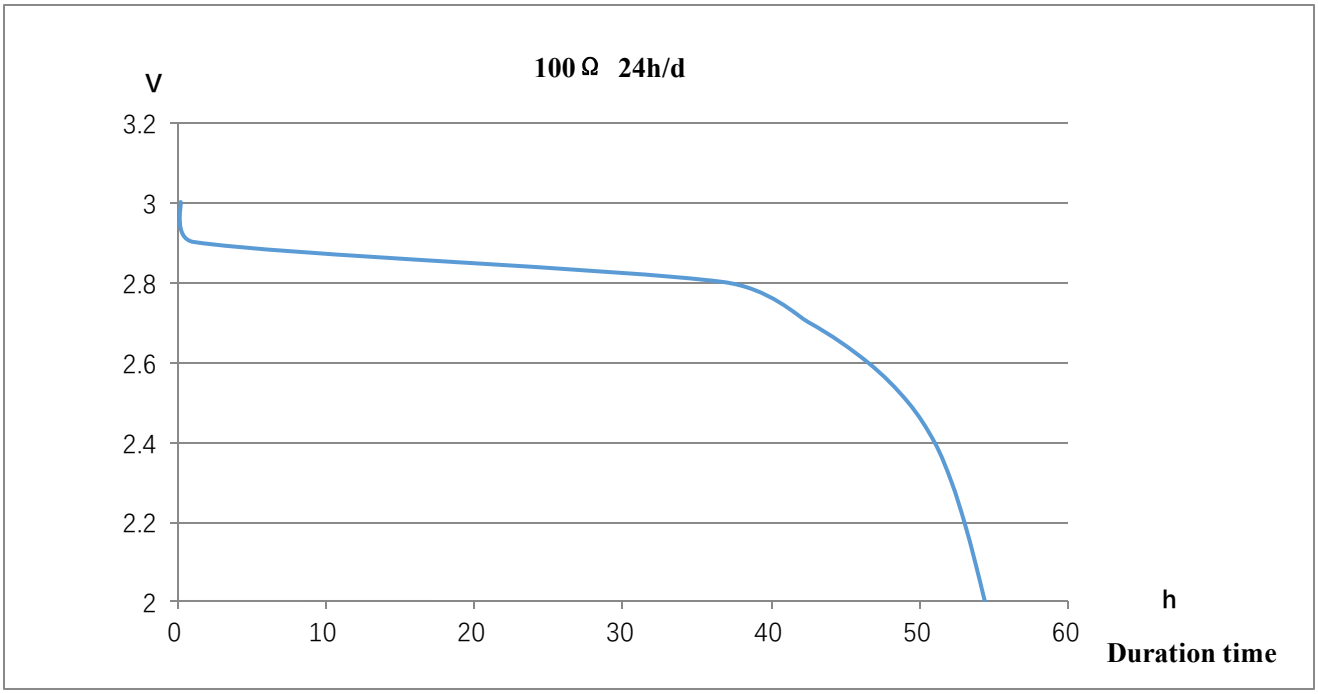
Unless otherwise specified, each battery will carry a expiry date code (YYYY-MM) for domestic and expiry date code (MM-YYYY) for export.

8. Packaging Requirements

8.1 The total of heavy metal lead, cadmium, mercury, and hexavalent chromium concentration shall not exceed 100ppm in packaging materials and printing inks. Ozone depleting substances (ODS) shall not be used in the manufacturing of any packaging.

8.2 The printing on each cell label is legible and permanent. Others can be resolved through negotiation based on the requirement of both parties.
8.3 Otherwise packaging for shipment and sales shall conform to the mutually agreed to packaging specification of the designated customers.

9. Discharge diagram



10.Storage and stock rotation

10.1 Batteries should be stored in a dry place with minimal temperature variation.

10.2 Do not expose batteries to direct sunlight or expose them to moisture to avoid deterioration of performance.

10.3 For normal storage, the temperature should be between + 10℃ and + 25℃ and never exceed +30 ℃, while the relative humidity being below 60%. Extremes of humidity (over 95% and below 40% relative humidity) for sustained periods should be avoided.

10.4 The height to which batteries may be stacked is clearly depended on the strength of the packaging. As a general rule, this height should not exceed 1.5m for cardboard packages or 3m for wooden cases.

11. Precautions in Handling of Lithium Batteries

Lithium batteries contain lithium metal, organic solvents and other reactive materials, which are combustible. Care must be exercised when handling Lithium batteries to ensure that short circuiting, puncturing or deformation does not occur which may result in heat generation, leakage, explosion or possibility a fire which might cause injury. To ensure safety and to avoid any possibility of any accidents, please observe the following precautions.

11.1 Make sure the polarities are correct.
Always insert batteries correctly with regard to polarity (+ and –) marked on the battery and the equipment When batteries are inserted in reverse they might be short-circuited or charged. This can cause overheating, leakage, venting, rupture, explosion, fire and personal injury.

11.2 Do not short-circuit batteries
When the positive (+) and negative (–) terminals of a battery are connected directly with each other, the battery becomes short-circuited. This can result in venting, leakage, and possibly fire.
11.3 Do not charge batteries
Attempting to charge a primary battery may cause internal gas and/or heat generation resulting in venting, explosion and possibly fire.

11.4 Do not force discharge batteries
When batteries are force discharged by means of an external power source, the voltage of the battery will be forced below its design capability and gases generated inside the battery. This may result in venting, leakage, explosion and possibly fire.

11.5 Do not mix batteries

When replacing batteries, replace all of them at the same time with new batteries of the same brand and type. When batteries of different brand or type are used together or new and old batteries are used together, some batteries may be charged due to a difference of cell voltage or over discharged due to a difference of capacity. This may result in venting and/or explosion.

11.6 Exhausted batteries should be immediately removed from equipment and disposed of.
When discharged batteries are kept in the equipment for a long time, electrolyte leakage may occur causing damage to the equipment.

11.7 Do not overheat batteries
When a battery is overheated, electrolyte may be released and separators may deteriorate. This may result in leakage, venting, explosion and possibly fire.

11.8 Do not weld or solder directly to batteries
The heat from welding or soldering directly to a battery may cause leakage, venting, explosion, or fire.

11.9 Do not dismantle batteries
When a battery is dismantled, the components may cause personal injury or fire.

11.10 Do not deform batteries
Lithium batteries should not be crushed, punctured, or otherwise mutilated. Such abuse may result in leakage, venting, explosion, or possibly fire.

11.11 Do not dispose of batteries in fire
When batteries are disposed of in fire, the heat build-up may cause explosion and/or fire.
Do not incinerate batteries except for approved disposal in a controlled incinerator.

11.12 A lithium battery with a damaged container should not be exposed to water
Lithium metal in contact with water may produce fire and/or hydrogen gas.

11.13 Keep batteries out of the reach of children
Especially keep batteries which are considered swallowable out of the reach of children. In case of ingestion of a cell or battery, seek medical assistance promptly.

12. Guidelines for designers of equipment using lithium batteries

12.1 When a lithium battery is used as main power source
12.1.1 Select most suitable battery for the equipment, taking note of its electrical characteristics.
12.1.2 Number of batteries (series connection or parallel connection) to be used and method or use.
12.1.2.1 Multicell batteries (2CR5, CR-P2, CR-V9 and others), one piece only;

12.1.2.2 Cylindrical batteries (CR123A, CR2 and other), when the number of batteries is three or more, there should be protective measures;
12.1.2.3 When more than one battery is used, different types should not be used in the same battery compartment;
12.1.2.4 When batteries are used in parallel protection against charging should be provided.
12.1.3 Design of battery circuit:
12.1.3.1 Battery circuit shall be isolated from any other power source;
12.1.3.2 Protective devices such as fuses shall be incorporated in the circuit.

12.2 When a lithium battery is used as back-up power source
12.2.1 Design of battery circuit:
12.2.1.1 The battery should be used in separate circuit so that it is not force discharged or charged by the main power source.
12.2.2 Design of battery circuit for memory back-up application:
12.2.2.1 When a battery is connected to the circuit of a main power source with the possibility of being charged, a protective circuit must be provided with a combination of diode and resistor.

12.3 Design of battery holder and battery compartment
12.3.1 Battery compartment should be designed so that if a battery is reversed, open circuit is achieved;
12.3.2 Battery compartments should be designed so that batteries other than the specified size cannot be inserted and make contact;
12.3.3 Battery compartments should be designed to allow generated gases to escape. Battery compartments may be damaged when internal pressure of the battery becomes too high due to gas generation;
12.3.4 Battery compartments should be designed to be water proof;
12.3.5 Battery compartments should be designed to be explosion proof when tightly sealed;
12.3.6 Battery compartments should be isolated from heat generated by the equipment;
12.3.7 Battery compartments should be designed so that they cannot easily be opened by children.

12.4 Design of contacts and terminals
12.4.1 Material and shape of contacts and terminals should be selected so that effective electric contact is maintained;
12.4.2 Auxiliary circuit should be designed to prevent reverse installation of batteries;
12.4.3 Contact and terminal should be designed to prevent reverse installation of batteries.

12.5 Indication of necessary precautions
12.5.1 Orientation of batteries (polarity) should be clearly indicated at the battery compartment on the equipment;
12.5.2 Precautions for the proper handling of batteries should be indicated in the instruction manual.